"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

BORODYUK, V.P., inzh.; KRUG, G.K., kand.tekhn.nauk, dotsent;
STEBAKOV, S.A., inzh.

Using digital computers for obtaining static characteristics of combined controlled members according to statistical data. Izv.vys.ucheb.zav.; mashinostr. no.12:135-139 '61. (MIRA 15:2)

1. Moskovskiy energeticheskiy institut.
(Automation)
(Electronic digital computers)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

S/145/61/000/012/006/007
D221/D302

AUTHORS: Krug, G. K., Candidate of Technical Sciences, Docent, Kosyakin, A. A. and Zaydenberg, L. M., Engineers

TITLE: Design of digital systems according to the criterion of the mean square error

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 12, 1961, 140-150

TEXT: The paper is an attempt to devise a method of designing systems of digital program control of metal cutting machines, taking into account the digital character of transmission and conversion of the signal. The error in level quantization depends on the quantization step. When the quantization step 9 is small, the error curve can be approximated by a series of rectilinear segments having variable inclinations, except for the case of the input signal passing an extremum. The mean error is then zero, and the mean square error becomes equal to $9^2/12$. The spectral density of the quantization noise is practically uniform in most practical cases. Time quantization is understood as fixing the values of a continu-

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

ous function at discrete equidistant time instants. The error of quantization can be regarded as a noise; its characteristics are found by considering some equivalent noise which is assumed to be independent of the input signal and called the noise of time quantization. The authors obtain an expression for the spectral density of the latter. If the noise of level quantization is itself time quantized the resulting spectral density is found to be $(9^2/3\omega^2 T) \sin^2(\omega T/2)$, where T is the step of time quantization. For systems operating with increments of a discrete quantity (called systems of the first group), the authors deduce a formula for their mean square error and quote Wiener's formula for their synthesis. The total error of a system of the second group (operating with total values of a discrete quantity), consisting of the dynamic error of the continuous part and the errors due to level and time quantization, are also deduced. Analysis of systems of the second group is stated to be very complicated and to become simpler only if the error due to quantization noises is much less than the dynamic er-

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Design of digital ... S/145/61/000/012/006/007
D221/D302

ror in reproduction of the useful signal. There are 6 figures and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: W. R. Bennet, Bell System Technical Journal, v. 27, July 1948; N. Wiener, Extrapolation, interpolation and smoothing of stationary time series, 1949.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Institute of Power Engineering)

Card 3/3

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, G.K. (Moskva); LETSKIY, E.K. (Moskva)

Table-type learning automation. Avtom.i telem. 22 no.10:1360-1366 O '61. (MIRA 14:10)

(Automatic control)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

16.8000 (1031)

31266
S/103/61/022/011/006/014
D271/D306

AUTHORS: Borodyuk, V. P., and Krug, G. K. (Moscow)

TITLE: Determining the relationship equations in complex objects

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 11, 1961, 1475-1481

TEXT: Control of complex objects would be facilitated if the importance of parameters affecting the processes were evaluated by static probability equations; methods for finding such equations are considered by the authors. Process parameters are divided into four groups, viz. input, output, disturbing and control; such classification could be used in analyzing entire industrial units. Due to disturbing parameters, the relationship between parameters must be regarded as statistical, and not purely functional. The most effective method of obtaining relationship equations is by analyzing statistical data accumulated in the natural course of processes, and by using correlation analysis. Probability equations between

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output and input parameters allow forecasting of the most likely results of variations in the input; the limits of input parameters can be worked out when permissible variations of output parameters are given. The dependence of output on control parameters is described by the equation

$$\bar{K}_i(t) = \int [Z(t - \tau)] \qquad (2)$$

4

where $\bar{K}_i$ is the mean value of the i-th output parameter, Z - control parameter and τ - delay in action. Analogous systems of equations between control and input parameters can lead to a prognosis of the values of control parameters necessary in a given situation because different sets of control-input data will exist for various regions of values of output parameters. Probability equations associating output with input and control parameters are the nearest to a full mathematical description of the object considered. The control will be more accurate if more independent variables are in-

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

cluded in the equation, but for reasons of easier handling it is not advisable to collect all variables in one equation. It is better to split the variables into sub-groups each containing mutually dependent parameters free from the influence of other sub-groups. In order to determine the coefficients of probability equations the correlation analysis makes use of the least squares method. In the case of the linear correlational dependence, the degree of coupling becomes identical with the correlation coefficient R. As an example of the method of setting probability relationship equations a chemical continuous process was analyzed; it had 19 input, 5 control and 1 output parameters. Input parameters were split into sub-groups of two each, in all possible combinations with the exception of those which were known to be useless as the variables were independent. 66 equations were thus obtained of the type

$$\bar{K} = a_o + a_1 X_i + a_2 X_j \qquad (7)$$

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

31266

Determining the relationship ...: S/103/61/022/011/006/014
D271/D306

All numerical calculations were performed by a digital computer type "Ural - 1". After calculating all coefficients for all equations as well as correlation coefficients it was found that the range of value of the correlation coefficients was 0.01 - 0.34. Finally six equations were chosen, for which correlation coefficients were 0.31 - 0.34. There are 3 figures and 3 Soviet-bloc references.

SUBMITTED: March 3, 1961

Card 4/4

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

BALTRUSHEVICH, A.V.; KOSYAKIN, A.A.; KRUG, G.K.

Dynamics of digital automatic control systems. Trudy MEI no.44: 157-294 '62. (MIRA 16:5)

(Automatic control)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

BOZHANOV, Emil Stoynev, inzh.; ZAYDENBERG, Leonid Maksovich, inzh.; KRUG, German Karlovich, kand.tekhn.nauk, dotsent

Statistical approximation of the continuous equations of the coupling of complex processes. Izv. vys. ucheb. zav.; elektromekh. 5 no.12:1319-1326 '62. (MIRA 16:6)

1. Moskovskiy energeticheskiy institut.
(Automatic control)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

IVANOV, A.Z.; KRUG, G.K.; KUSHELEV, Yu.N.; LETSKIY, E.K.; SVECHINSKIY, V.B.

Self-teaching control system. Trudy MEI no.44:47-156 '62. (MIRA 16:5)

(Automatic control)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, G. K.; NETUSHIL, A. V.

" To the Theory of Self-Adjusting Systems. "

Paper to be presented at the IFAC Congress to be held in Basel, Switzerland, 27 Aug to 4 Sep 63

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

SOCHIVKO, Vladimir Petrovich; KRUG, G.K., red.; BUL'DYAYEV, N.A., tekhn. red.

[Electronic recognition systems] Elektronnye opoznaiushchie ustroistva. Moskva, Izd-vo "Energiia," 1964. 56 p. (Biblioteka po avtomatike, no.91) (MIRA 17:4)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

YEFIFANOV, Aleksandr Dmitriyevich; KRUG, G.K., kand. tekhn. nauk, dots., retsenzent; SVECHINSKIY, V.B., inzh., retsenzent; CHERVONYY, A.A., doktor tekhn. nauk, prof., nauchn. red.

[Reliability of automatic control systems] Nadezhnost' avtomaticheskikh sistem. Moskva, Mashinostroenie, 1964. 335 p. (MIRA 18:1)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, G.K.

Program for locating a control algorithm for complex nonstationary processes. Avtom. upr. i vych. tekh. no.6:100-110 '64.

(MIRA 17:10)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

BORODYUK, V.P.; KRUG G.K.

Some problems concerning the organization of an experiment for locating a mathematical description of a technological process. Avtom. upr. i vych. tekh. no.6:111-127 '64. (MIRA 17:10)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, German Karlovich, dotsent

Automatic programming language and "Algol-60" publications. Izv. vys. ucheb. zav.; elektromekh. 7 no.8:927-931 '64. (MIRA 17:10)

1. Kafedra avtomatiki i telemekhaniki Moskovskogo energeticheskogo instituta.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

ACCESSION NR: AP5018376

SUBMITTED: 06Mar64 ENCL: 00 SUB CODE: OP, IE

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, N. K.

"Calculation of Linear Electric Circuits for the Generation and Conversion of Pulses." Sub 25 May 51, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, N.K., kandidat tekhnicheskikh nauk

Calculation of four-pole networks according to given voltages (impulses) of input and output. Trudy MEI no.14:7-18 '53.
(Electric networks)
(MLRA 8:7)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

LEVIN, N. K.

"Computation of Nonhomogeneous Lines," pp 16-22, 111, 9 ref

Abst: In design of attenuators difficulties arise in matching sections of a line with different characteristic impedance. Calculation of junctions (sections of dissimilar line) to obtain a low-st coefficient of reflection in matching a line to an attenuator without losses is given.

SOURCE: Trudy Moskovskogo Energeticheskogo In-ta im. V. M. Molotova MVO SSSR (Works of the Moscow Energetics Institute ireni V. M. Molotov of the Ministry of Higher Education USSR), No 18, Electric Vacuum Technology and Instrument Building, Moscow-Leningrad, Gosenergoizdat, 1956

Sum 1854

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

TATUR, Tat'yana Andreyevna, kand. tekhn. nauk, dotsent; KRUG, Natal'ya Karlovna, kand. tekhn. nauk, dotsent

Magnetization of ferromagnetic plates with a rectangular hysteresis loop and ductility. Izv. vys. ucheb. zav.; elektromekh. 6 no.10:1141-1150 '63. (MIRA 17:1)

1. Moskovskiy energeticheskiy institut.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

REZANOV, I.A.; NGO TKHYONG SHAN; SHEYNMANN, Yu.M.; RATS, M.V.; KRUG, O.Yu.; ZYRYANOV, V.N.; RAKCHEYEV, A.D.; YAKOVLEVA, Ye.B.; PETROVA, M.A.; PETROV, Yu.I.; KUZNETSOV, Ye.A.; YUDINA, V.V.; BARDINA, N.Yu.; SIMANOVICH, I.M.; ATANSYAN, S.V.; SERGEYEVA, A.M.; PARFENOV, S.I.; RUTKOVSKI, Yatsek [Rutkowski, Jacek]; MAKHLINA, M.Kh.; ZVEREV, V.P.; TERNOVSKAYA, V.T.; SAMOYLOVA, R.B.; YERMAKOVA, K.A.; BYKOVA, N.K.; MEYYEN, S.V.; BARSKOV, I.S.; IL'INA, L.B.; BABANOVA, L.I.; DOLITSKAYA, I.V.; GORBACH, L.P.; BUTS'KO, S.S.; TRESKINSKIY, S.A.; SVOZDETSKIY, N.A.; PRYALVKHINA, A.F.; GROSVAL'D, M.G.; MODEL', Yu.M.; GORYAINOVA, I.N.; MEDVEDEVA, N.K.; MYALO, Ye.G.; DOBROVOL'SKIY, V.V.; KHOROSHILOV, P.I.; CHIKISHEV, A.G.

Brief news. Biul. MOIP. Otd. geol. 40 no.3:122-154 My-Je '65. (MIRA 18:8)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, Ye. K., Engineer

"AC Final Control Mechanism Operating on the First Derivative of a Drive for Regulating Elements of Automatic Control Systems." Sub 27 Dec 51, Inst of Automatics and Telemechanics, Acad Sci USSR

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 490, 9 May 55

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

EKIN, M. E.

"Alternating Current Servomechanism," published in "Collection of Works on Automatics and Telemechanics," Izd. Akad. Nauk, USSR, 1953, Moscow, page 44.

B-83749, 4 Apr 55

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, Ye.K. (Moscow)

Increasing the speed of response in servomechanism outputs. Avtom. i telem. 15 no.4:354-360 Jl-Ag '54. (MLRA 7:11)
(Servomechanisms)

Abs.- W-31148, 7 Feb 55

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

USSR/Physics - Electromagnetic clutch FD-1394

Card 1/1 : Pub. 10 - 3/12

Author : Krug, Ye. K., and Minina, O. M. (Moscow)

Title : Auxiliary device with electromagnetic clutch

Periodical : Avtom. i telem., 15, No 6, 492-500, Nov-Dec 1954

Abstract : The authors discuss the operation of an auxiliary device with an air electromagnetic clutch which is controlled from an electronic amplifier. They analyze the characteristics of the electromagnetic clutch and they give the principles governing the selection of the regulation circuit and investigate the influence of the various parameters upon the stability of the auxiliary device. The authors conclude that a reversible electromagnetic clutch can be utilized in rapidly acting auxiliary devices of industrial value and that the initial current (i.e. current when the output axis of the clutch is not moving) must be as small as possible but ensuring a linear dependence of the characteristic M=f(1). In their model of such a clutch the time of transient process was as low as 0.15 second. Four references: N. I. Chistyakov, Elektricheskiye aviatsionnyye pribory [Electrical aviation devices], Defense Press, 1950.

Institution :

Submitted : February 8, 1954

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

USSR/Automatics and telemechanics - Nonlinear systems FD-3081

Card 1/1 Pub. 10 - 4/8

Author : Krug, Ye. K.; Minina, O. M. (Moscow)

Title : Features in the investigation of dynamic properties of nonlinears that contain an unstable link

Periodical : Avtom. i telem., Vol. 16, Nov-Dec 1955, 536-541

Abstract : On the example of the simplest possible system the authors show that judgments concerning the dynamic properties of systems that contain unstable links cannot be based upon an investigation of them by the method of harmonic balance. They conduct the investigation in the phase plane. They consider a system whose structural scheme is characterized by the transfer functions $x_2=k_1x_1/(T_1p+1)$, $x_3=f(x_2)$, $x_1=k_2x_3/(T_2p-1)$, where T's and k's are positive numbers respectively constants of time and coefficients of amplification of the links, and f is a nonlinear function of a step-like character (equal to negative constant for negative x_2 and same positive constant for positive x_2, and approximately linear in the neighborhood of $x_2=0$ etc.). Two references: L. S. Gol'dfarb, "Certain nonlinearities in regulation systems," ibid., No 5, 1947; A. A. Andronov, S. E. Khaykin, Teoriya kolebaniy, ONTI NKTP SSSR, 1937.

Submitted : March 22, 1955

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

AVEN, O.I. (Moskva); DEMIDENKO, Ye.D.(Moskva); DOMANITSKIY, S.M. (Moskva); KRUG, Ye.K.(Moskva).

Electric servomechanism with controllable speed. Avtom.i telem.17 no.3:238-249 Mr '56. (MLRA 9:7)
(Servomechanisms)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

103-10-2/10

AUTHOR: Krug, Ye.K., Minina, O.M. (Moscow)

TITLE: The Influence of Nonlinear Characteristics of Some Elements of P.I. Controller on the Transient Properties of an Automatic Control System
(O vliyanii nekotorykh nelineynykh kharakteristik elementov izodromnogo regulyatora na dinamicheskiye svoystva sistemy avtomaticheskogo regulirovaniya)

PERIODICAL: Avtomatika i Telemekhanika, 1957, Vol. 18, Nr 10, pp. 886 - 898 (USSR)

ABSTRACT: By means of an automatic control system consisting of a simple control object and a PI controller it is demonstrated how the control line limitation and the nonlinearity in the controller elements which realize the proportional and integral control-law-members influence the form of the transition process. On the basis of the investigations described here the following can be said: 1.) In an automatic control system (ARS) with PI controller the limitation of the control line deteriorates the transition process in the case of a feeding excitation as well as on the occasion of excitation by loading. 2.) The reduction of velocity in the isodrome element delays the transition process compared with the process in a system of linear approxi-

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

103-10-2/10

The Influence of Nonlinear Characteristics of Some Elements of P.I. Controller on the Transient Properties of an Automatic Control System

mation. 3.) In the case of feed excitation a limitation of velocity in the isodrome element improves the transition process in systems with limited control line as well as in systems expressed by linear equations. In the case of ARS with which the feeding value is often changed, it is profitable to introduce a nonlinear adjusting transformer into the integrating element. The introduction of a nonlinear adjusting into the proportional element improves the transition processes in the case of excitation by loading in ARS with which the position of the controlling organ and the velocity in the isodrome (PI) element are limited. On the occasion of the selection of the nonlinear adjusting transformer the stability of the systems of higher order and of the systems with delay must be controlled. There are 9 figures, 4 tables and 4 Slavic references.

SUBMITTED: March 25, 1957

AVAILABLE: Library of Congress

Card 2/2

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, Ye.K.

KRUG, Ye.K. (Moskva); MININA, O.M. (Moskva)

The influence of nonlinear characteristics of some elements of P.I. controller on the transient properties of an automatic control system [with summary in English]. Avt. i telem. 18 no.10:886-898 O '57. (MIRA 10:10)
(Automatic control)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, Yelena Karlovna, kand. tekhn. nauk; SHIROCHENSKIY, Sergey Ivanovich, inzh.; MORDVINOVA, N.P., inzh., ved. red.; GONCHAROV, I.V., kand. tekhn.nauk, red.; POMOMAREV, V.A., tekhn. red.

[Contactless control device with impulse control of the executive motor]Beskontaktnoe reguliruiushchee ustroistvo s impul'snym upravleniem ispolnitel'nym dvigatelem. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 9 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 42. No.P-58-47/4) (MIRA 16:2)
(Automatic control) (Electric controllers)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, Ye. K.

8(2); 28(1) PHASE I BOOK EXPLOITATION SOV/1433

Soveshchaniye po avtomatizirovannomu elektroprivodu peremennogo toka, Moscow, 1955

Trudy... (Transactions of the Conference on Automated A-C Electric Drives) Moscow, Izd-vo AN SSSR, 1958. 398 p. 4,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.

Resp. Eds: V.S. Kulebakin, Academician, and M.G. Chilikin, Doctor of Technical Sciences, Professor; Ed. of Publishing House: D.M. Ioffe; Tech. Ed.: I.P. Kuz'min.

COVERAGE: The conference was organized on the initiative of the Institute of Automation and Telemechanics of the Academy of Sciences, USSR, and the Moscow Power Engineering Institute and had as its aim the planning of the most progressive ways of developing automatic control of electric drives. The first conference on the subject of automated electric drive took place more than ten years before the present one and was concerned with d-c electric drives. The results of this conference were found to be most valuable in the task of rebuilding postwar Soviet industry and in furthering industrial development. Present technical development of Soviet industry demands high speeds, simplicity of construction, reliability of operation, and economy. The squirrel-cage induction motor with frequency control appears to be the most promising type of controlled a-c drive. For wide application of this drive in the Soviet economy there is a need of developing new types of frequency converters. Some interesting studies were made in this connection at the Institute of Automation and Telemechanics of the USSR Academy of Sciences and its Leningrad branch, at the Moscow Power Engineering Institute, the Central Design Bureau of the "Elektroprivod Plant, the State Design Institute of the Ministry of Construction of the RSFSR, and in other design organizations. These studies were discussed at the present conference. The transactions contain material concerning the theory and design of reactor, pulse, and frequency methods of controlling a-c electric drives. Candidate of Technical Sciences I.V. Utkin and Engineer V.A. Kokoreva participated in the preparation of this collection of papers. The volume was reviewed by Professor Ya. V. Mitusov, Doctor of Technical Sciences. Some of the papers include a bibliography.

TABLE OF CONTENTS:

Transactions of the Conference (Cont.) SOV/1433

Aren, O.I., Candidate of Technical Sciences; S.M. Domanitskiy, Candidate of Technical Sciences; Ye. K. Krug, Candidate of Technical Sciences; and Ye. K. Denisenko, Engineer. Automatic Electric Drive With Reactor Control and Actuator Devices 321

Many automatic industrial systems use electric actuator devices with constant speed. In this article the author discusses actuators with variable speed. He explains the theory and the practical applications of this method. There is 1 Soviet reference.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG Ye. K.

AUTHOR: Sergeyev, A. S., Docent

TITLE: Dissertations (Dissertatsii)

105-58-4-28/37

PERIODICAL: Elektrichestvo, 1958, Nr 4, pp. 87-88 (USSR)

ABSTRACT: For the Degree of Candidate of Technical Sciences, 1946-1954.

At the Institute for Automation and Remote Control of the AS USSR (Institut avtomatiki i telemekhaniki Akademii nauk SSSR).

S. A. Aleskerov, on December 1o, 1948: "Methods for the Calculation of the Magnetic Circuits of a Relay Apparatus". Official opponents were: Corresponding Member of the AS USSR Doctor of Technical Sciences V. I. Kovalenko, Doctor of Technical Sciences Professor G. V. Dobrovol'skiy and Candidate of Technical Sciences Docent B. S. Sotskov.

L. G. Kogan, on December 1o, 1948: "Investigation of Systems of Automatic Voltage Control in an Electric Model". Official opponents were: Doctor of Technical Sciences M. A. Ayzerman and Doctor of Technical Sciences Ya. Z. Tsypkin.

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Ye. I. Chernov, on December 28, 1950: "Investigation of

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Dissertations

105-58-4-28/37

A. C. Servo-Mechanisms of Low Capacity". Official opponents were: Doctor of Technical Sciences V. V. Solodovnikov and Doctor of Technical Sciences Professor Ya. Z. Tsypkin.

O. A. Bud'ko, on March 15, 1951: "On the Increase of Magnetic Strength in Electrical Machines by Means of Electrodynamic Amplifiers". Official opponents were: Doctor of Technical Sciences Professor A. N. Larionov and Docent V. P. Bychkov.

Ye. K. Krug, on December 27, 1951: "A C. Control Mechanism with Dependent Velocity for the Drive of Control Elements in Automatic Control Systems". Official opponents were: Doctor of Technical Sciences Professor A. T. Golovan, and Doctor of Technical Sciences Professor A. N. Larionov.

✓ G. N. Alyab'yeva, on June 26, 1952: "Nonlinear Circuit Correction in Electronic Installations of Automatic Control With Many Circuits". Official opponents were: Doctor of Technical Sciences Professor K. S. Bobov and Candidate of Technical Sciences A. A. Scholev.

Card 2/4

✓ V. V. Imedadze, on June 25, 1953: "Investigation of the

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

Dissertations

105-58-4-28/37

Systems of Automatic Control and of the Control of Subsidiary Mechanisms in Print Rolling Mills and Heavy Type Excavators". Official opponents were: Doctor of Technical Sciences Professor D. P. Morozov and Doctor of Technical Sciences Professor V. V. Solodovnokov.

At the Scientific Research Institute of Electrotechnical Industry (Nauchno-issledovatel'skiy institut elektrotekhnicheskoy promyshlennosti).

✓ Ya. Sh. Gurin, on November 16, 1950: "Determination of the Optimum Ratio Between the Main Measurements in D. C. Machines for General Use". Official opponents were: Doctor of Technical Sciences Professor Yu. S. Chechet and Doctor of Technical Sciences Ye. M. Sinel'nikov.

✓ B. B. Voronetskiy, on March 29, 1951: "Experimental and Theoretical Investigation of Stator Oscillations in Asynchronous Motors as Source of Magnetic Noises". Official opponents were: Doctor of Technical Sciences Ye. B. Nitusov, Doctor of Technical Sciences N. M. Yakimenko and Candidate of Physico-Mathematical Sciences I. Ye. Sakharov.

Card 3/4 ✓ D. S. Urinovskiy, on December 27, 1951: "Synchronous Motor

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

Dissertations

105-58-4-28/37

With Permanent Magnets". Official opponents were: Doctor of Technical Sciences Professor D. A. Gorodskiy and Candidate of Technical Sciences Docent F. A. Goryainov.

✓ N. B. Yakobson, on January 24, 1952: "Investigation of a Rectifier Scheme by A. N. Larionov (Three-Phase Bridge Scheme) Applied in an Electric Drive". Official opponents were: Doctor of Technical Sciences Professor Ye. V. Nitusov and Candidate of Technical Sciences F. I. Butayev.

✓ N. Ya. Al'per, on January 15, 1953: "Theory and Calculation of Generators of the Inductor Type". Official opponents were: Doctor of Technical Sciences Professor Yu. S. Chechet and Doctor of Technical Sciences Professor A. N. Larionov.

✓ S. G. Artanov, on March 11, 1954: "Investigation of a Synchronous Motor With a Mechanical Rectifier". Official opponents were: Doctor of Technical Sciences Professor N. V. Gorokhov and Doctor of Technical Sciences Professor A. A. Dimitradze.

AVAILABLE: Library of Congress

Card 4/4 1. Electrical engineering-Reports

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

Krug, Ye. K.

AUTHORS: Krug, Ye. K., Minina, O. M. (Moscow)

103-1-2/10

TITLE: About Optimum Transition Processes in Automatic Control Systems With Limited Valve Position (Ob optimal'nykh perekhodnykh protsessakh v sisteme avtomaticheskogo regulirovaniya s ogranicheniyem polozheniya reguliruyushchego organa)

PERIODICAL: Avtomatika i Telemekhanika, 1958, Vol. 19, Nr 1, pp. 10 - 25 (USSR)

ABSTRACT: At the projecting of automatic control systems (ACS) controllers have to be established, granting a minimum time of the transition processes. Hereto the condition of a deviation minimum from the theoretical value is required for the quantity to be controlled. For the purpose of solution of this task the behavior of the system with limited valve position in presence of different kinds of excitation is analyzed, and the transition processes with a minimum duration are determined. Such transition processes here are defined as optimum ones, whilst the time of the transition process denotes the space of time of from the beginning of the excitation supply to the moment, when the deviation of the quantity to be controlled will be exactly zero. In the systems investigated here two kinds of excitation are effecting. Here, they are called excitation according to the load (M), and excitation according to the re-

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

103-1-2/10

About Optimum Transition Processes in Automatic Control Systems With Limited Valve Position

quired value (X). The optimum transition processes are found here in presence of intermittent excitations at the stress and according to the required value for the control-objects, the dynamical properties of which may be characterized by differential equations of first order with retardation, as well as for objects characterized only by some terms of first order. It is assumed that the displacement of the valve in the system is limited by extreme values. It is shown that, if the optimum transition processes in the automatic control system with limited valve position can be realized, it is possible to diminish the duration of the transition processes by a multiple, and to increase the dynamic precision, in comparison to transition processes in normal processes. It is shown that the application of steady controllers with non-linear transformers in order to realize the optimum transition processes, is practically difficult. Viz. therefore, because the non-linear relations are to be chosen in dependence on the value, on the kind and the place of the excitation established, and starting from the initial valu s of the limited coordinates. Besides, in such systems self-oscillations may arise. Here, a controller of discreet (unsteady ?) mode of operation is proposed. This one renders possible to obtain optimum processes, as well in presence of inter-

Card 2/3

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

About Optimum Transition Processes in Automatic Control Systems With Limited Valve Position 103-1-2/10

mittent excitation at stress are according to the required value, as in presence of an excitation according to the required value varying symmetrically with respect to time. For these controllers formulae were derived here, for the purpose of determining the period of stay of the valve in the most extreme position (6) and for the coordinate values of the positions of equilibrium of the valve (7). There are 13 figures, 3 tables, and 7 references, 3 of which are Slavic.

SUBMITTED: March 25, 1957

AVAILABLE: Library of Congress

1. Differential equations-Applications 2. Control systems-Analysis

Card 3/3

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, German Karlovich; KRUG, Yelena Karlovna; PASTERNAK, Ye.B., red.; LARIONOV, G.Ye., tekhn.red.

[Electric compensation elements in automatic regulation and control circuits] Elektricheskie korrektiruiushchie elementy v skhemakh avtomaticheskogo kontrolia i regulirovaniia. Moskva, Gos.energ.izd-vo, 1959. 83 p. (Biblioteka po avtomatike, no.10)

(Automatic control) (MIRA 13:3)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

8(2), 9(6)

AUTHORS: Krug, Ye. K., Minina, O. M., Candidates of Technical Sciences

SOV/119-59-3-4/15

TITLE: Contactless Automatic Electrical Controllers (Beskontaktnyye elektricheskiye regulyatory)

PERIODICAL: Priborostroyeniye, 1959, Nr 3, pp 11-13 (USSR)

ABSTRACT: In this paper a number of variants of automatic electric controllers for general industrial use are discussed. These controllers are designed according to an assembly principle and may be operated according to various modes of operation and with different primary elements. The first section of the article deals with flywheel regulators of the types RB-3 and RB-4 with a feedback with respect to the position of the final control element. The first figure shows the block diagram of the above-mentioned controllers in conjunction with the controlled process RO. The component parts of the automatic controllers are enumerated and briefly described. The second figure gives the principal circuit diagram of the automatic controller RB-3. The integrating units of the automatic controllers RB-3 and RB-4 have different elements determining the time constant of the flywheel regulator. In the case of RB-3 the isodrome time varies step-wise, whereas

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in the case of RB-4 it varies continuously. In figure 3 the principal circuit diagram of the RB-4 is given, and in figure 4 a general view of the RB-3 is presented. The second section of the article under review deals with automatic flywheel controllers of the types RPB-3 and RPB-4, which operate by a derivative mode. These two automatic controllers are distinguished from the RB-3 and RB-4 flywheel controllers by the addition of a mechanical-electronic derivative unit. The structure of this system is given in a figure. The derivative unit consists of a two-valve amplifier, of a compact two-phase motor of the type DA-1 with a reducing gear and an induction primary element (or a slide wire device). The equation describing the controller action of the automatic flywheel controller with a derivative mode of operation is written down. The time constant of the derivative mode can be adjusted continuously. In the third section of this paper an automatic flywheel controller of the type RB-5 without feedback with respect to the position of the final control element is discussed. This is a contactless automatic controller, which guarantees a constant-speed flywheel controller action without the introduction of a feedback with

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Contactless Automatic Electrical Controllers 307/119-59-3-4/15

respect to the position of the final control element. The actual design of the RB-5 somewhat resembles that of the RB-3 and RB-4. The automatic controllers RB-3, RB-4, and RB-5 may be supplemented by an electronic device which has the shape of a separate unit. This electronic supplement amplifies the control signal if the sensitivity of the final control element is to small. The coefficient of amplification of the electronic device can be controlled. The minimum threshold sensitivity of a system combining the electronic supplement and an automatic controller of the types RB-3, RB-4, and RB-5 is 5 microvolts. There are 7 figures, 1 table, and 3 Soviet references.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

16-8000

S/194/61/000/002/025/039
D216/D302

AUTHOR: Krug, Ye.K.

TITLE: A certain principle of extremum regulation

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 2, 1961, 36, abstract 2 V280 (V sb. Teoriya i primeneniye diskretn. avtomat. sistem, M., AN SSSR, 1960, 523-533)

TEXT: A method of extremum regulation is considered according to which the input quantities are simultaneously increased by increments proportional to the partial derivatives of respective variables, the partial derivatives being determined at the same time from the harmonics of the output quantity which correspond to the fixed frequencies of input quantities. The choice of frequency of oscillations of input quantities is considered, together with the design of the regulator. The accuracy of determining the partial derivatives is given. 7 references.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, Yelena Karlovna; MININA, Ol'ga Mikhaylovna [deceased]; SHTEYNBERG, Sh.Ye., retsenzent; ROZENBERG, L.A., red.; BUL'DYAYEV, N.A., tekhn. red.

[Electrical controllers in industrial automatic control systems] Elektricheskie reguliatory promyshlennoi avtomatiki. Moskva, Gosenergoizdat, 1962. 334 p. (MIRA 15:10)
(Automatic control) (Electric controllers)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

16,8000

S/103/62/023/004/005/011
D299/D301

AUTHOR: Krug, Ye.K. (Moscow)

TITLE: Dynamic properties and adjustment of sampled-data control systems

PERIODICAL: Avtomatika i telemekhanika, v. 23, no. 4, 1962, 481 - 496

TEXT: Systems are considered with control objects, whose dynamic properties are described by first-order differential equations with lag; the systems have sampled-data controllers of various types: Proportional (P), integral (I), proportional-plus-integral (PI), and -PI-derivative (PID). The stability of these systems is investigated. The results are given of a comparative study of control systems with continuous- and sampled-data controllers. First, the operation of the various types of sampled-data controllers is considered, i.e. the performing of differentiation, integration, etc. An analysis shows that the adjustment parameters of the P-, I-, PI- and PID controllers, are the sampling period T and the scaling factors. Further, the transfer functions of the control objects in sampled

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

systems are derived. The stability regions of continuous- and sampled control-systems were compared. Thereby it was found that an increase in T (in systems with sampled PI-controllers) leads in the majority of cases to a narrowing of the stability region, as compared to continuous systems. Only for certain objects with self-adaptation (for which $3 < \tau/T_0 < 5$, with a ratio $1 < T/\tau < 2$), the region of stability of sampled systems is somewhat larger than that of continuous systems. The region of stability of systems with P- and PI controllers with objects without self-adaptation, is narrowing with increasing T. The possibility of obtaining a finite-time transient process is discussed. The ratio of parameters is determined which ensures a finite-time transient process. The obtained ratios are used for choosing the controller parameters. The cases are listed in which a finite-time transient process can be obtained. It was found that sampled-data PID-controllers do not give finite-time transient processes. The dynamic properties of systems with an object in the form of a pure lag element, and a sampled-data controller, have no appreciable advantages over systems, with continuous (PI- and I) controllers. Choice of parameters and transient processes in systems with sampled-data controllers and first-order objects

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with lag are examined. For such systems, no finite-time transient processes could be obtained; the choice of parameters was proposed on the basis of grapho-analytic construction of the transient processes could be obtained; the choice of parameters was proposed on the basis of grapho-analytic construction of the transient processes. The following conclusions were reached: 1) In systems without object self-adaptation an increase in T, leads always to a lowering in the transient performance. The larger T/τ, the longer the transient process and the larger the maximum deviation. With $T/\tau < 0.2$, the transient processes in sampled-data systems are practically identical with those in continuous systems. 2) In systems with objects for which $\tau/T_o > 1$, the form of the transient process depends on T; the control time increases with T. With $T < \tau$, the performance of the sampled-data system is worse than that of a continuous system. With $T > \tau$ ($T = 1.25\ \tau$), the control time in sampled-data systems is smaller than in continuous systems. 3) The larger T/τ, the greater the influence of the ratio of the time lapse between the moment at which the disturbance arises, and the moment the deviation is measured. 4) With $T/\tau < 0.2$ and $\tau/T_1 < 2$, the transient

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processes in systems with sampled-data controllers, practically coincide with those in continuous systems. 5) In systems with pure-lag objects (or with $\tau/T_0 > 6$), it is expedient to either tend to processes in continuous systems with PI-controllers, (choosing $k_1k_0 = 0.3$, $k_1T/k_2\tau = 0.4$ with $T/\tau < 0.2$), or to use sampled I-controllers ($k_1 = 0$) for which $k_0k_1 = 1$ and $T = 1.25\ \tau$. The choice of other parameter-ratios leads to worse performance. There are 14 figures, 3 tables and 2 Soviet-bloc references.

SUBMITTED: August 24, 1961

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

S/119/63/000/002/001/014
A004/A127

AUTHOR: Krug, Ye.K.

TITLE: Some problems of designing digital controllers

PERIODICAL: Priborostroyeniye, no. 2, 1963, 1 - 4

TEXT: The author enumerates the advantages of utilizing digital controllers in production processes, compares their efficiency with that of continuous controllers and describes their range of application. He points out that such controllers operate without statistical errors. Adequate formulae are presented in describing the laws of control and the adjustment parameters of proportional digital controllers, integrating digital controllers and proportional-integrating digital controllers. The same way as this is done with continuous controllers, it is possible to develop digital controllers in conformity with some standard structures. A number of structural diagrams are presented. After a brief description of the basic units of such controllers, the author pointssout that the Institut avtomatiki i Telemekhaniki (Institute of Automation and Telemechanics) (IAT) has developed several modifications of digital controllers with block diagrams mentioned in this article.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

BIRYUKOV, N.O.; ZHURKINA, E.G.; KRUG, Ye.K.; KULEMIN, V.I.; PCHELINTSEVA, M.D.; KHRAMOY, A.V.; SHORINA, A.A.; SEMENOVA, A.A., red.izd-va; SHEVCHENKO, G.N., tekhn.red.

[Russian-English-German-French dictionary of terms on automatic control] Russko-anglo-nemetsko-frantsuzskii slovar' terminov po avtomaticheskomu upravleniiu. Pod red. A.V. Khramogo. Moskva, Izd-vo AN SSSR, 1963. 229 p. (MIRA 16:9)

1. Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.
(Automatic control--Dictionaries)
(Russian language--Dictionaries--Polyglot)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

MININA, Ol'ga Mikhaylovna; KRUG, Ye.K., kand. tekhn. nauk, otv. red.; LETNEV, B.Ya., red.izd-va; LAUT, V.G., tekhn.red.

[Determination of the dynamic characteristics and parameters of standard control objects] Opredelenie dinamicheskikh kharakteristik i parametrov tipovykh reguliruemykh ob"ektov. Moskva, Izd-vo AN SSSR, 1963. 44 p. (MIRA 16:10)
(Automatic control)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, Ye.K.

Some problems in the design of digital controllers. Priborostroenie no.2:1-4 F '63. (MIRA 16:5)

(Electronic digital computers)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

ACCESSION NR: AP4040515 S/0102/64/000/003/0003/0017

AUTHOR: Krug, O. K. (Krug, Ye. K.) (Moscow)

TITLE: Dynamic properties and setting of sampling-controller systems

SOURCE: Avtomaty*ka, no. 3, 1964, 3-17

TOPIC TAGS: automatic control, sampled data automatic control, sampling controller, digital controller

ABSTRACT: A general theoretical discussion of sampled-data automatic-control systems whose dynamic properties can be described by delayed equations of the first order is presented. Various sampling-controller systems are compared with the corresponding continuous systems. Control laws and setting parameters of digital controllers, transfer functions of individual units in a sampled-data system, stability limits, transients in digital-controller systems, and kindred problems are considered. Recommendations for selecting the settings of digital

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

ACCESSION NR: AP4040515

controllers are supplied. Orig. art. has: 9 figures, 10 formulas, and 3 tables.

ASSOCIATION: none

SUBMITTED: 24Dec63 DATE ACQ: 26Jun64 ENCL: 00

SUB CODE: DP, IE NO REF SOV: 002 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

AVEN, O.A.; DVORETSKIY, V.M.; DOMANITSKIY, S.M.; ZALMANZON, L.A.; KRASSOV, I.M.; KRUG, Ye.K.; TAL', A.A.; KHOKHLOV, V.A.; BULGAKOV, A.A.; DEMIDENKO, Ye.D.; BERNSHTEYN, S.I.; YEMEL'YANOV, S.V.; LERNER, A.Ya.; MEYEROV, M.V.; PEREL'MAN, I.I., FITSNER, L.N.; CHELYUSTKIN, A.B.; ZHOZHIKASHVILI, V.A.; IL'IN, V.A.; AGEYKIN, D.I.; GUSHCHIN, Yu.V.; KATYS, G.P.; MEL'TTSER, L.V.; PARKHOMENKO, P.P.; MIKHAYLOV, N.N.; FITSNER, L.N.; PARKHOMENKO, P.P.; ROZENBLAT, M.A.; SOTSKOV, B.S.; VASIL'YEVA, N.P.; PRANGISHVILI, I.V.; POLONNIKOV, D.Ye.; VOROB'YEVA, T.M.; DEKABRUN, I.Ye.

Work on the development of systems and principles of automatic control at the Institute of Automatic and Remote Control during 1939-1964. Avtom. i telem. 25 no. 6:807-851 Je '64. (MIRA 17:7)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUG, Ye.K. (Moskva)

Some problems of the dynamic characteristics of systems with different controllers with continuous and discrete action. Avtom. i telem. 25 no.7:1075-1085 Jl '64. (MIRA 17:12)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

L 33345-66 EWP(k)/EWT(d)/EWP(h)/EWP(1)/EWP(v)

ACC NR: AT6005905 SOURCE CODE: UR/0000/65/000/000/0239/0249

AUTHOR: Aleksandridi, T. M.; Diligenskiy, S. N.; Krug, Ye. K.

ORG: None

31
B+1

TITLE: Digital controls

SOURCE: International Federation of Automatic Control. International Congress. 2d, Basel, 1963. Tekhnicheskiye sredstva avtomatiki (Technical means of automation); trudy kongressa. Moscow, Izd-vo Nauka, 1965, 239-249

TOPIC TAGS: control system, dynamic stability, digital system

ABSTRACT: In addition to specialized digital control systems, there is now a need for the development of all-purpose digital systems. The construction of such control systems is possible on the basis of an analysis of dynamic characteristics of digital systems. The present authors investigate some of the characteristics of the dynamic properties of digital controls and describe operational principles of single-channel and multi-channel digital controls. The all-purpose digital control systems examined incorporate the proportional-integral (PI) law of control. Other investigations have shown that PI controls assure high-quality control for many controlled plants. Orig. art. has: 8 figures and 10 formulas.

SUB CODE: 09 / SUBM DATE: 23Jun65 / ORIG REF: 004 / OTH REF: 003

Card 1/1 JS

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGLI, N.I.

Automatic machine for the felting of a "Kapsel" of piano mechanisms. Bum. i der. prom. no.1:8-9 Ja-Mr '65. (MIRA 18:10)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

[illegible], Ya A.

"The Family Glycyrrhiza L. and Its Importance in the National Agricultural Economy." Cand Biol Sci, Leningrad State Pedagogical Inst, Leningrad, 1953. (KZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A.

Survey of species of the genera Glycyrrhiza L. and Meristotropis Fish. et Mey. Trudy Bot.inst.Ser.1 no.11:161-197 '55.(MIRA 9:7)
(Licorice)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye. A.

L

USSR / Meadow Cultivation.

Abs Jour : Ref Zhur - Biol., No 10, 1958, No 43983

Author : Kruganova, Ye. A.
Inst : Institute of Biology, AS Belorussian SSR
Title : On the Problem of the Seed and Hay Productivity of Wild Meadow Grasses Under Culture Conditions.

Orig Pub : Byul. In-ta biol. AN BSSR, vyp. 2, 1956 (1957), 5-11.

Abstract : The bog meadow grass, awnless brome grass, meadow fescue, timothy, pasture rye grass and other grasses covered by the study produced one hay crop and aftermath during the first year of utilization after a coverless fall sowing. On the second year of utilization, the hay productivity increases in most plants. The plants yielded (under the culture conditions) sufficient quantity of seeds for their propagation. With fall sowing, a number of varieties bear

Card 1/2

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

L

USSR / Meadow Cultivation.

Abs Jour : Ref Zhur - Biol., No 10, 1958, No 43983

fruit in the first year of use. Fall sowing periods are recommended for growing grass for seed on dry land having a temporary excess of moisture. -- I. S. Shaternikova.

Card 2/2

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

J

Country : USSR
Category: Soil Science. Soil Biology.

Abs Jour: RZhBiol , No 14, 1958, No 63057

Author : Krugnnova, Ye. A.; Ponomareva, A.V.
Inst : A.S. of Belorussian SSR
Title : Azotobacter on Rhizomes of Lathyrus montanus Bernh.

Orig Pub: Vestsi AN BSSR, Ser. biyal. n., Izv AN BSSR, Ser. biol. n , 1956, No 4, 181-182

Abstract: No abstract.

Card : 1/1

J-24

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANAVA, Ye.A.

Some wild meadow grasses of White Russia. Vestsi AN BSSR. Ser. biial. nav. no.1:13-19 '57. (MIRA 10:6)

(White Russia--Grasses)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A.

Seed and hay yields of wild meadow grasses introduced into cultivation. Biul. Inst. biol. AN BSSR no.2:5-11 '57. (MIRA 11:2)
(Grasses)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

L

USSR / Meadow Cultivation

Abs Jour: Ref Zhur-Biol., Vol 13, 1958, 58450

Author : Kruganova, E. A.

Inst : AS BSSR

Title : Study of the Meadow Vegetation of Byelorussia During the Forty Years of Soviet Power

Orig Pub: Izv. AN BSSR, Ser. biol. n. 1957, No 3, 39-43

Abstract: No abstract.

Card 1/1

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

YURKEVICH, I.D.; KHUGANOVA, Ye.A.

Development of legume associations in floodlands. Biul. Inst. biol. AN BSSR no.3L46-52 '58. (MIRA 13:7)
(LEGUMES)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A. [Kruhanava, E.A.]

Seed productivity of leguminous plants in natural coenoses. Vestsi AN BSSR Ser.biial.nav. no.4:45-48 '58. (MIRA 12:4)
(Legumes) (Seed production)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

YURKEVICH, I.D. [IUrkevich, I.D.], akademik; KRUGANOVA, Ye.A. [Kruhanava, E.A.], kand. biol. nauk; YASINSKIY, I.I. [IAsinski, I.I.], mladshiy nauchnyy sotrudnik

Transforming the structure of meadow plant associations by the use of herbicides. Vestsi AN BSSR. Ser. biial. nav. no.1:17-36 '59. (MIRA 12:7)

1.AN BSSR (for Yurkevich).
(Herbicides) (Pastures and meadows)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A. [Kruhanava, E.A.]

Charles Darwin's botanical works. Vestsi AN BSSR.Ser.biial.nav. no.4:18-22 '59. (MIRA 13:4)
(Darwin, Charles Robert, 1809-1882)
(Botany)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

TOMIN, M.P., akademik; KOZLOVSKAYA, N.V.; KRUGANOVA, Ye.A.; MIKHAYLOVSKAYA, V.A.; TSETTERMAN, N.O.; SHISHKIN, B.K., glavnyy red.; BULAT, O., red.izd-va; VOLOKHANOVICH, I., tekhn.red.

[Flora of the White Russian S.S.R.] Flora BSSR. Minsk. Vol.5. 1959. 266 p. (MIRA 13:1)

1. Akademiia nauk Belaruskoi SSR, Minsk. Instytut biialogii. 2. Zaveduyushchiy otdelom flory i gerbariya Instituta biologii AN BSSR (for Tomin). 3. Institut biologii AN BSSR (for all except Shishkin, Bulat, Volokhanovich).
(White Russia--Compositae)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A.

Yellow trefoil (Medicago lupulina L.) as a forage plant. Sbor.nauch. rab.Bel.otd.VBO no.1:37-41 '59. (MIRA 14:4)
(Medicago)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A. [Kruhanava, E.A.], kand.biolog. nauk; GORBACH, N.V. [Horbach, N.V.], kand.biolog. nauk

In the White Russian Section of the All-Union Botanical Society. Vestsi AN BSSR.Ser.biial.nav. no.2:138-140 '59. (MIRA 12:9)
(WHITE RUSSIA--BOTANICAL RESEARCH)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

YURKEVICH, I.D.; KRUGANOVA, Ye.A.; YASINSKIY, I.I.

Use of herbicides in hayfields and pastures. Biul. Inst. biol. AN BSSR no.5:9-16 '60. (MIRA 14:7)
(PASTURES AND MEADOWS)
(WEED CONTROL)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A.; KIM, G.A.; YASINSKIY, I.I.

Effect of prolonged grazing on the specific composition of grass stands in natural pastures. Biul. Inst. biol. AN BSSR no.5:17-25 '60. (MIRA 14:7)

(PASTURES AND MEADOWS)
(GRAZING)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.; GORBACH, N.V.

Some results of work of the White Russian Section of the All-Union Botanical Society. Bot.zhur. 45 no.3:466-469 Mr '60. (MIRA 13:6)

1. Institut biologii Akademii nauk BSSR, Minsk.
(White Russia--Botanical research)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A.; YURKEVICH, I.D.; YASINSKIY, I.I.; BURTYS, N.A.

Poisonous and rare meadow plants in the basin of the Neman River. Sbor. nauch. rab. Bel. otd. VBO no.3:43-54 '61. (MIRA 14:12)
(Neman Valley—Poisonous plants)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

YURKEVICH, I.D.; KRUGANOVA, Ye.A.; YASINSKIY, I.I.

Geobotanical characteristics of meadows of the right bank tributaries of the Neman River. Biul. Inst. biol. AN BSSR no.6:82-93 '61. (MIRA 15:3)
(NEMAN VALLEY--PASTURES AND MEADOWS)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

YURKEVICH, I.D., red.; NESTEROVICH, N.D., red.; RAKHTEYENKO, I.N., red.; MIKHAYLOVSKAYA, V.A., red.; KRUGANOVA, Ya.A., red.; ZAYTSEVA, T., red. izd-va; TURTSEVICH, L., tekhn. red.

[Experimental botany]Eksperimental'naia botanika. Minsk, Izd-vo Akad. nauk BSSR, 1962. 115 p. (MIRA 15:8)

1. Akademiia navuk BSSR, Minsk. Instytut biialogii. (Botany)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A.

Geobotanic conference on meadow vegetation held at Minsk on February 11-14, 1961. Bot.zhur. 47 no.2:291-292 F '62. (MIRA 15:3)

1. Institut biologii AN Belorusskoy SSR, Minsk.
(Pastures and meadows—Congresses)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

GEL'TMAN, V.S.; KRUGANOVA, Ye.A.

Ivan Danilovich IUrkevich; on his 60th birthday. Bot.zhur. 47 no.11:1703-1705 N '62. (MIRA 16:1)

1. Institut biologii AN BSSR, Minsk.
(IUrkevich, Ivan Danilovich, 1902-)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGANOVA, Ye.A.; KIM, G.A.; BURTYS, N.A.

Meadows in the Valuvka floodplain and the ways of their transformation. Bot.; issl. Bel. otd. VBO no.6:61-69 '64. (MIRA 18:7)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

YURKEVICH, I.D. ['Urkevich, I.D.]; [illegible]
BURTOS, N.A.

Grass swamps and peat meadows in the upper basin of the Neman River. Vestsi AN KSSR, Ser. b[illegible], nov. no.4:5-1[illegible] '64.
(MIR' 18:12)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGER, M. P.

Shock worker of communist labor. Avtom., telem. i sviaz' 7 no.4:28-29 Ap '63. (MIRA 16:4)

1. Starshiy inzh. signalizatsii, tsentralizatsii i blokirovki Tallinskoy distantsii signalizatsii i svyazi Pribaltiyskoy dorogi.

(Railroads—Employees)
(Railroads—Signaling)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGER, M.Ya., inzh.; PANOV, V.A., kand. tekhn. nauk; KULAGIN, V.V., kand. tekhn. nauk; POGAREV, G.V., kand. tekhn. nauk; KRUGER, Ya.M., inzh.; LEVINZON, A.M., inzh.; Prinimal uchastiye KALINKEVICH, V.N., inzh.; KAZANSKIY, A.V., kand. tekhn. nauk, retsenzent; DMITRIYEV, A.A., inzh.; SIMONOVSKIY, N.Z., red. izd-va; MITARCHUK, G.A., red.izd-va; SHCHETININA, L.V., tekhn. red.

[Handbook for the designer of optical instruments] Spravochnik konstruktora optiko-mekhanicheskikh priborov. [By] M.IA. Kruger i dr. Moskva, Mashgiz, 1963. 803 p. (MIRA 16:12)
(Optical instruments)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGER, M YA

Konstruirovaniye optiko-mekhani-cheskikh priborov. (Designing of optical devices, by, M. YA. Kruger I B. M. Kulizhnov. Moskva, Mashoiz, 1948.

218 p. Diagrs., tables.

Bibliographical material throughout.

Book brings general information about construction of optical instruments and principles of their designing. It informs of materials used in manufacturing of optical instruments and gives computation basic parts and mechanisms utilized in optical instruments. Book is intended for students of device-constructing technical schools and workers of optical instruments enterprises.
6:30 N/5

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGER, M.Ya.

KRICHEVSKIY, Yevgeniy Samoylovich; FEDOROVICH, Leonid Grigor'yevich; FETISOV, Vladimir Fedorovich; VERTSNER, V.N., kand. fiz.-mat. nauk, retsenzent; KRUGER, M.Ya., inzh., retsenzent; SHOSHIN, I.A., inzh., retsenzent; SOBOLEV, S.F., inzh., retsenzent; DULIN, V.N., kand. tekhn. nauk, red.; BOGOMOLOVA, M.F., red. izd-va; PUKHLIKOVA, N.A., tekhn. red.

[Electrical equipment in optical and mechanical instruments] Elektrooborudovanie optiko-mekhanicheskikh priborov. Moskva, Gos. izd-vo obor. promyshl., 1958. 467 p. (MIRA 11:7)
(Electronic apparatus and appliances)
(Electric apparatus and appliances)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGER, M.Ya.

The MIM-14 microscope with remote control for metallographic examinations. Biul.tekh.-ekon.inform. no.4:40-41 '60. (MIRA 13:11)
(Microscope)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRÜGER, Otto

Acid resistant enamel apparatus; enameling and enamel testing. Przem chem 41 no.11:658-662 N '62.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

VOROB'YEV, V.; PESNOPEVTSEV, P.; KRUGER, Ya.

The 8 mm motion-picture cameras and projectors. Sov.foto 22 no.10:30-33 O '62. (MIRA 15:11)
(Amateur motion pictures—Equipment and supplies)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGER, M.Ya., inzh.; PANOV, V.A., kand. tekhn. nauk; KULAGIN, V.V., kand. tekhn. nauk; POGAREV, G.V., kand. tekhn. nauk; KRUGER, Ya.M., inzh.; LEVINZON, A.M., inzh.; Prinimal uchastiye KALINKEVICH, V.N., inzh.; KAZANSKIY, A.V., kand. tekhn. nauk, retsenzent; DMITRIYEV, A.A., inzh.; SIMONOVSKIY, N.Z., red. izd-va; MITARCHUK, G.A., red.izd-va; SHCHETININA, L.V., tekhn. red.

[Handbook for the designer of optical instruments] Spravochnik konstruktora optiko-mekhanicheskikh priborov. [By] M.IA. Kruger i dr. Moskva, Mashgiz, 1963. 803 p. (MIRA 16:12)
(Optical instruments)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUHLA, N.I. [Kruhla, N.I.],

Role of the cerebral cortex in the development of leucocytic reactions of the organism [with summary in English]. Fiziol. zhur. Ukr. 4 no.5:650-656 S-O '58 (MIRA 11:11)

1. Stalinskiy meditsinskiy institut, kafedra patologicheskoy fiziologii.
(CEREBRAL CORTEX)
(LEUCOCYTES)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGLAYA, N.I.

Leukocytolytic properties of blood serum as one of the indicators of immunological reactivity of the organism. Zhur.mikrobiol.epid. i imun. 30 no.1:29-33 Ja '58. (MIRA 12:3)

1. Iz Stalinskogo meditsinskogo instituta.
(HEMOLYSIS,
leukocytolysis as immunol. index (Rus))

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1

KRUGLAYA, N.I. [Kruhla, N.I.]

Significance of the functional state of the vegetative nervous system for the development of leucocytic reactions in the organism. Fiziol. zhur. [Ukr.] 5 no.5:602-608 S-O '59 (MIRA 13:3)

1. Stalinskiy meditsinskiy institut, Donbass.
(LEUCOCYTES) (NERVOUS SYSTEM, AUTONOMIC)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826710015-1"